Module 5: Pharmacology

1. **Why should EMTs study pharmacology?**
   a. As an EMT, you will be trusted to administer medications in emergency situations; many of these may be lifesaving, but there is potential to do harm.
   b. An EMT must know the manufacturer, sources, characteristics, and effects of every medication that has been prescribed to the patient.
   c. As an EMT, you will be trusted to administer medications in emergency situations, although many of these may do nothing but give the patient false hope.
   d. An EMT must know the sources, characteristics, and effects of each medication that the physician may prescribe.

2. **Which of the following is a complete list of the medications an EMT can assist the patient in taking or administer under the direction of the Medical Director?**
   a. Prescribed bronchodilator inhalers, prescribed nitroglycerin, and prescribed epinephrine auto-injectors
   b. Any over-the-counter medication, oral glucose, and oxygen
   c. Aspirin, acetaminophen, oral glucose, insulin, prescribed bronchodilator inhalers, nitroglycerin, and epinephrine auto-injectors.
   d. Aspirin, oral glucose, oxygen, prescribed bronchodilator inhalers, nitroglycerin, and epinephrine auto-injectors

3. **Why do EMTs give aspirin to the patient on the ambulance?**
   a. Aspirin reduces the heart's ability to beat fast and works to prevent rapid heart rate.
   b. Aspirin reduces the pain level in patients who are in pain.
   c. Aspirin reduces the blood's ability to clot and works to prevent clot formation in patients suffering chest pain.
   d. It is given to calm the patient by reducing the pain because stress is the real killer.

4. **What condition must be present before you give oral glucose?**
   a. The patient must have a history of diabetes.
   b. The patient, if conscious, must be able to swallow; if unconscious, you can apply the gel to a tongue depressor and place it between the cheek and gum or under the tongue.
   c. The patient must be conscious and able to swallow with an altered mental status and history of diabetes.
   d. The patient must be unconscious and have a history of diabetes.

5. **What medication is given when a patient suffers from a medical or traumatic condition called hypoxia?**
   a. Oxygen
   b. Oral glucose
   c. Epinephrine
   d. Aspirin

6. **Which of the following statements is true concerning oxygen?**
   a. Never give oxygen to a chronic obstructed pulmonary disease patient.
   b. Always document the need for oxygen by pulse oximetry before giving it to the patient.
   c. Only withhold oxygen to anyone who is allergic to it.
   d. Never withhold oxygen to any patient who needs it.

7. **Nitroglycerin is indicated for which of the following chief complaints?**
   a. Decreased level of consciousness
   b. Chest pain
   c. Headache
   d. Difficulty breathing

8. **Which of the following is a potential side effect of nitroglycerin?**
   a. Decreased blood pressure
   b. Sudden increase in heart rate
   c. Difficulty breathing
   d. All of the above

9. **Which of the following is often prescribed for a patient with a heart condition?**
   a. Ventolin
   b. Nitroglycerin
   c. An epinephrine auto-injector
   d. Non-aspirin pain relievers such as Tylenol

10. **Epinephrine delivered by auto-injector may be indicated for patients with which of the following conditions?**
   a. Drug overdose
   b. Severe allergies to peanut, shellfish, penicillin, or bee stings
   c. Chest pain
   d. Chronic pulmonary diseases

11. **Which of the following is a desired action of epinephrine delivered by auto-injector?**
   a. Constriction of blood vessels
   b. Constriction of coronary arteries
   c. Dilation of coronary arteries
   d. Decrease in blood pressure

12. **Which of the following is an example of a medication's trade name?**
   a. Epinephrine
   b. Nitrostat
   c. 4 dihydroxyphenyl acetate
   d. Oxygen

13. **Which of the following BEST describes a contraindication to a medication?**
   a. An unintended action of the drug
   b. The way in which a drug causes its effects
   c. A reason why you should avoid giving a medication to a patient
   d. A reason why you should give a medication to a patient

14. **A drug's form refers to which of the following?**
   a. Its physical state, such as powder, liquid, or gas
   b. The mandatory paperwork that must be completed when giving any drug
   c. The type of container it comes in
   d. The way in which it is administered

15. **Which of the following describes the sublingual route of medication administration?**
   a. The medication is injected under the skin.
   b. The medication is breathed into the lungs, such as from an inhaler.
   c. The medication is placed under the tongue.
   d. The medication is swallowed whole, not chewed.

16. **Your patient is a 59-year-old woman with a history of emphysema. Per protocol, you have assisted the patient in using her medication inhaler. Which of the following must be documented?**
   a. The chemical name of the medication
   b. The expiration date of the medication
   c. The patient's response to the medication
   d. All of the above

17. **How is activated charcoal, which is carried by some EMS systems, supplied for use in emergency situations?**
   a. As a powder, which is premixed with water
   b. As a gel or paste
   c. As tablets
   d. As a fine liquid spray for inhalation

18. **Which of the following should you anticipate when giving nitroglycerin to a patient?**
    a. A drop in the patient's blood pressure
    b. A patient complaint of headache
    c. A change in the level of pain experienced by the patient
    d. All of the above

19. **You have just administered nitroglycerin to a 68-year-old patient. Within a few minutes, she complains of feeling faint and lightheaded, but states that she is still having some chest pain. Which of the following would be the BEST sequence of actions?**
    a. Lower the head of the stretcher and take the patient's blood pressure.
    b. Administer activated charcoal to prevent further absorption of the nitroglycerin and closely monitor the patient's blood pressure.
    c. Advise the patient that this is a normal occurrence and administer a second dose of nitroglycerin.
    d. Increase the amount of oxygen you are giving to the patient before administering a second dose of nitroglycerin.

20. **You respond to a medical call for a 59-year-old female complaining of tightness in her chest. You place her on a high concentration of oxygen and prepare for a short 5-minute transport to the hospital. The patient tells you she is on nitroglycerin, which she has not taken. Your partner tells you that you can give aspirin per protocol. Should you delay the patient transport to give the medication and why?**
    a. No, any delay will cause the patient more heart damage; each delay weakens the myocardium.
    b. Yes, the nitroglycerin will cause the blood vessels to dilate and restore some blood flow, and the aspirin will slow the clotting process.
    c. Yes, the nitroglycerin will cause the heart to beat stronger and restore some blood flow, and the aspirin will ease the pain.
    d. No, any delay will cause the patient more stress; she needs to be in a definitive care facility.

21. **Which of the following instructions should you give to a patient whom you are about to assist with administering epinephrine?**
    a. Insert the mouthpiece and inhale deeply as you depress the canister.
    b. I am going to inject medication into your thigh.
    c. Open your mouth and lift your tongue so I can spray this medication under your tongue.
    d. This is not pleasant tasting, but it is important that you drink all of it.

22. **Bronchodilator inhalers have several common side effects, which include:**
    a. decreased blood pressure and increased heart rate.
    b. bronchodilation and increased heart rate.
    c. vasoconstriction and increased heart rate.
    d. jitteriness and increased heart rate.

23. **What is the first step in giving aerosol medications?**
    a. Contact medical control to receive permission to give the medication.
    b. Determine that the inhaler actually belongs to the patient.
    c. Make sure the patient is suffering from asthma, emphysema, or bronchitis.
    d. Complete the primary assessment and take vital signs.

24. **Nitroglycerin (Nitro) is used for patients with recurrent chest pain or a history of heart attack. Nitro is supplied in what two ways?**
    a. Pills and injectable
    b. Aerosol and spray
    c. Pills and spray
    d. Ointment and pills

25. What are the actions of nitroglycerin on the human body?
    a. It reduces the pain in the myocardium and lowers blood pressure.
    b. It causes the dilation of coronary blood pressure and reduces pain in the myocardium.
    c. It causes the constriction of bronchioles and reduces pain in the myocardium.
    d. It causes the dilation of coronary blood vessels that supply the heart muscle.

26. A serious negative interaction for giving Nitrostat is a drug interaction with what medications?
    a. Nitroglycerin, Ventolin, and epinephrine
    b. Sildenafil, vardenafil, and epinephrine
    c. Viagra, Levitra, or medication for erectile dysfunction
    d. Oral glucose, Viagra, and aspirin

27. Name the type of medical direction consisting of standing orders and protocols.
    a. Off-line
    b. Verbal
    c. On-line
    d. Written

28. What is the indication for giving an epinephrine auto-injector in a life-threatening allergic reaction?
    a. It will help raise the patient's blood pressure and slow the heart rate.
    b. It will constrict the patient's airway passages and blood vessels.
    c. It will help constrict the patient's blood vessels and relax the airway passages.
    d. It will help dilate the patient's blood vessels and relax the airway passages.

29. What are the names given to each medication listed in the U.S. Pharmacopoeia?
    a. Official, chemical, and generic
    b. Manufacturers, general, and governmental
    c. Trade, chemical, and generic
    d. Trade, brand, and generic

30. The symptoms or circumstances for which a medication is given are called:
    a. contraindications.
    b. indications.
    c. side effects.
    d. untoward effects.

31. When you give patients nitroglycerin, they sometimes develop a headache. This would be called a:
    a. side effect.
    b. contraindication.
    c. untoward effect.
    d. indication.

32. You are called to the school where a 16-year-old female has trouble breathing from a possible allergic reaction. You arrive and find the patient wheezing, with cool clammy skin, and holding an epinephrine auto-injector. After you assess the patient and contact medical control, you are advised to give the medication. When you give the patient the epinephrine auto-injector she develops symptoms of anxiety: dizziness, headache, nausea, nervousness, paleness, sweating, tremors, vomiting, and weakness. These symptoms are considered:
    a. contraindications.
    b. untoward effects.
    c. side effects.
    d. indications.

33. **The epinephrine auto-injector is given via the _____ route.**
    a. oral
    b. enteral
    c. digestive
    d. parenteral

34. **Nitroglycerin is given via the _____ route.**
    a. parenteral
    b. lingual
    c. sublingual
    d. enteral

35. **Which of the following BEST describes the five rights?**
    a. In date, right medication, right order, right dose, right time
    b. Right patient, right medication, in date, right dose, right route
    c. Right decision, right medication, right order, right dose, right place
    d. Right patient, right medication, right time, right dose, right route

36. **Choose the correct completion to this statement regarding IV administration: This route is used to administer medication into the body directly or through the bloodstream and is:**
    a. beyond the scope of the EMT level.
    b. allowed in larger cities and more advanced EMS services.
    c. used in advanced life support only when the patient is intubated.
    d. only performed on advanced life support services.

37. **The study of the effects of medications on the body in relation to age and weight is called:**
    a. pharmacology.
    b. pharmacodynamics.
    c. measurement and documentation.
    d. pharmacokinetics.

38. **The EMT, after administering any medication, must do which of the following?**
    a. Reconsider the five rights, reassess the patient, and contact medical control.
    b. Document the administration, reassess the patient, and report to the receiving facility.
    c. Wait 5 minutes, repeat the medication if needed, and reassess the patient's vitals.
    d. Document the route, dose, and time; reassess the patient; and re-administer the medication.

39. **You are called to assist a 25-year-old female patient who is in profound respiratory distress. The patient has a history of asthma and severe allergies to peanuts. She has a prescribed albuterol inhaler and an epinephrine auto-injector. The patient states she was working on her garden when she accidentally stirred up a hornets' nest and was stung multiple times. The patient has wheezing in all fields, and is breathing at 28 times per minute. She states that she triggered her asthma by running across the yard to the safety of her home. As you apply oxygen, you notice that she is now speaking in two- to three-word sentences, her skin has splotches, and her tongue and neck appear to be swelling. Your next action is to call medical control and then do what?**
    a. Request to assist the patient with her Albuterol inhaler for her asthma.
    b. Request to assist the patient with her epinephrine pen for anaphylaxis.
    c. Request to assist the patient with her Albuterol for anaphylaxis.
    d. Do not request to give epinephrine. It was prescribed for a peanut reaction, not for asthma.

40. You are on the scene of a 48-year-old male patient complaining of chest pain. He has nitroglycerin prescribed and available. After performing your physical examination, you contact medical control and are ordered to assist the patient in taking his nitroglycerin. Five minutes after taking his nitroglycerin, the patient complains of being dizzy and having a headache. You lie the patient down on the stretcher and reassess his vital signs. He is now hypotensive. The patient is:
    a. suffering from an allergic reaction to nitroglycerin.
    b. suffering from an anaphylactic reaction to nitroglycerin.
    c. suffering from an untoward reaction to nitroglycerin.
    d. suffering from the side effects of nitroglycerin.

41. You are on the scene of a 68-year-old patient with a history of COPD who is breathing 44 times per minute and has a diminished level of consciousness. His wife states he has an Albuterol inhaler and nitroglycerin tablets for angina. What is the most important drug you can administer to the patient?
    a. Oxygen by bag-valve mask
    b. Oxygen by nonrebreather mask
    c. Albuterol
    d. Nitroglycerin

42. What is the first medication that should be administered to a patient experiencing chest pain with difficulty breathing?
    a. Oxygen
    b. Aspirin
    c. Nitroglycerin
    d. Albuterol

43. What is the most important medication that should be administered to a patient experiencing chest pain with difficulty breathing?
    a. Oxygen
    b. Aspirin
    c. Nitroglycerin
    d. Albuterol

44. You are on the scene of a 70-year-old female patient complaining of chest pain. After performing your assessment, you call medical control to assist the patient in administering her nitroglycerin. After receiving permission from medical control, you administer the medication. You then realize that you gave the patient her husband's nitroglycerin. What should you do?
    a. Since the nitroglycerin was indicated for the patient's condition and was appropriate, medical control does not need to be informed of the error.
    b. Report the medication error.
    c. Reassess the patient. The medication error only needs to be reported if there is an untoward effect on the patient.
    d. Report the medication error. Most services do not punish EMTs who self-report themselves.

45. You are on the scene at a fancy hotel room for a 60-year-old male patient who calls 911 at 10 p.m. for chest pains. He states he was about to go to bed when he suddenly had chest pain that would not go away. He rates his pain as a 7 out of 10 and is diaphoretic. His vital signs are stable, and he takes medications for hypertension, high cholesterol, and erectile dysfunction. The patient is allergic to morphine. After placing the patient on oxygen, you contact medical control and request:
    a. to administer aspirin to the patient.
    b. to administer nitroglycerin to the patient.
    c. to administer both aspirin and nitroglycerin to the patient.
    d. no orders.

46. You are called to an elementary school for an 8-year-old female patient who is experiencing respiratory distress. The school nurse states the patient has an epinephrine auto-injector for a possible anaphylactic reaction to bee stings. The patient also has an Albuterol inhaler for asthma. The patient is breathing 30 times a minute, is in the tripod position, and is speaking in two- to three-word sentences. The nurse states the patient was playing basketball in the gym when she started having difficulty breathing. The patient has wheezing in all lung fields. An ALS unit is en route but it is 10 minutes away. You are 20 minutes away from the nearest hospital. After placing the patient on oxygen, your next intervention should be to:
    a. contact medical control and request to assist the patient with her epinephrine.
    b. provide supportive care until the ALS unit arrives.
    c. cancel the ALS unit and call medical control to assist with the Albuterol administration while en route to the hospital.
    d. contact medical control and request to assist the patient with her Albuterol.

47. You are called to assist a 25-year-old female patient who is in profound respiratory distress. The patient has a history of asthma and severe allergies to peanuts. She has a prescribed Albuterol inhaler and an epinephrine auto-injector. The patient states she was working on her garden when she accidentally stirred up a hornets' nest and was stung multiple times. The patient has wheezing in all fields, and is breathing at 28 times per minute. She states that she triggered her asthma by running across the yard to the safety of her home. As you apply oxygen, you notice that she is now speaking in two- to three-word sentences, her skin has splotches, and her tongue and neck appear to be swelling. You suspect that the patient is suffering from what condition?
    a. Exercise-induced asthma
    b. Status asthmaticus
    c. Anaphylaxis
    d. Hyperventilation syndrome

48. An EMT is on the scene of a 48-year-old male patient complaining of chest pain. He has nitroglycerin prescribed and available. After performing the primary and secondary assessments, the EMT contacts medical control and is ordered to assist the patient in taking his nitroglycerin. Carefully, the EMT performs the "five rights" and checks the expiration before administering the medication. The patient states the medicine is not helping his pain. The patient also states he does not have a headache. Reassessment of the patient's vital signs shows no change in blood pressure. The EMT suspects the medication is not working because:
    a. the nitroglycerine is too old.
    b. the medication is not nitroglycerin.
    c. the EMT only gave one tablet instead of two.
    d. the medication was exposed to varying climatic conditions.

49. How does nitroglycerin decrease the level of chest pain that a patient experiences?
    a. It constricts the blood vessels, forcing more blood into the heart muscle.
    b. It dilates the blood vessels, allowing more blood to enter the heart muscle.
    c. It constricts the blood vessels, forcing the toxic lactic acid out of the heart.
    d. It dilates the blood vessels, allowing more blood flow to wash away the toxic lactic acid.

50. How does aspirin actually reduce the chances that a patient suffering a heart attack will die?
    a. It reduces the amount of pain in the heart.
    b. It prevents a deadly fever from developing.
    c. It reduces the inflammation in the heart.
    d. It reduces the ability of the blood to form clots.

51. **Albuterol and epinephrine both have bronchodilation properties that improve the amount of oxygen that a person can inhale and absorb. However, Albuterol is administered only for asthma, whereas epinephrine is administered for both asthma and anaphylaxis. Why is epinephrine, and not Albuterol, the first choice for anaphylaxis?**
    a. Albuterol makes the heart rate increase too much.
    b. Albuterol slows down the heart rate too much.
    c. Albuterol drops the blood pressure too low.
    d. Albuterol is not a vasoconstrictor.

52. **You are on the scene of a 44-year-old female patient who has attempted suicide by taking all 30 pills of her antidepressant medication at once. You are ordered by medical control to administer activated charcoal. How will activated charcoal reduce the effects of the medication?**
    a. Activated charcoal will cause the patient to vomit the medication.
    b. Activated charcoal will inactivate the patient's stomach acid.
    c. Activated charcoal will coat the intestines, preventing absorption.
    d. Activated charcoal will bind to the medication, reducing absorption.

53. **A common side effect of nitroglycerin reported by patients is a pounding headache. How does nitroglycerin cause a headache while simultaneously reducing chest pain?**
    a. Nitroglycerin vasoconstricts blood vessels, pushing painful toxins out of the heart while at the same time reducing blood flow to the brain.
    b. Nitroglycerin dilates the blood vessels, flushing out toxins that then go to the brain.
    c. Nitroglycerin dilates the blood vessels, increasing blood flow to the heart, and increases the pressure in the cerebral vessels.
    d. Nitroglycerin vasoconstricts blood vessels, forcing more oxygen-rich blood into the heart, while also increasing the pressure in the cerebral arteries.

Module 5: Pharmacology

Test Name: pharmacology

1. a. As an EMT, you will be trusted to administer medications in emergency situations; many of these may be lifesaving, but there is potential to do harm.
2. d. Aspirin, oral glucose, oxygen, prescribed bronchodilator inhalers, nitroglycerin, and epinephrine auto-injectors
3. c. Aspirin reduces the blood's ability to clot and works to prevent clot formation in patients suffering chest pain.
4. c. The patient must be conscious and able to swallow with an altered mental status and history of diabetes.
5. a. Oxygen
6. d. Never withhold oxygen to any patient who needs it.
7. b. Chest pain
8. a. Decreased blood pressure
9. b. Nitroglycerin
10. b. Severe allergies to peanut, shellfish, penicillin, or bee stings
11. a. Constriction of blood vessels
12. b. Nitrostat
13. c. A reason why you should avoid giving a medication to a patient
14. a. Its physical state, such as powder, liquid, or gas
15. c. The medication is placed under the tongue.
16. c. The patient's response to the medication
17. a. As a powder, which is premixed with water
18. d. All of the above
19. a. Lower the head of the stretcher and take the patient's blood pressure.
20. b. Yes, the nitroglycerin will cause the blood vessels to dilate and restore some blood flow, and the aspirin will slow the clotting process.
21. b. I am going to inject medication into your thigh.
22. d. jitteriness and increased heart rate.
23. b. Determine that the inhaler actually belongs to the patient.
24. c. Pills and spray
25. d. It causes the dilation of coronary blood vessels that supply the heart muscle.
26. c. Viagra, Levitra, or medication for erectile dysfunction
27. a. Off-line
28. c. It will help constrict the patient's blood vessels and relax the airway passages.
29. c. Trade, chemical, and generic
30. b. indications.
31. c. untoward effect.
32. c. side effects.
33. d. parenteral
34. c. sublingual
35. d. Right patient, right medication, right time, right dose, right route
36. a. beyond the scope of the EMT level.
37. b. pharmacodynamics.
38. b. Document the administration, reassess the patient, and report to the receiving facility.
39. b. Request to assist the patient with her epinephrine pen for anaphylaxis.
40. d. suffering from the side effects of nitroglycerin.
41. a. Oxygen by bag-valve mask
42. a. Oxygen
43. b. Aspirin
44. b. Report the medication error.
45. a. to administer aspirin to the patient.
46. d. contact medical control and request to assist the patient with her Albuterol.
47. c. Anaphylaxis
48. d. the medication was exposed to varying climatic conditions.
49. b. It dilates the blood vessels, allowing more blood to enter the heart muscle.
50. d. It reduces the ability of the blood to form clots.
51. d. Albuterol is not a vasoconstrictor.

52. d. Activated charcoal will bind to the medication, reducing absorption.
53. c. Nitroglycerin dilates the blood vessels, increasing blood flow to the heart, and increases the pressure in the cerebral vessels.